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THE EARLY BOTANICAL VIEWS OF PRUNUS DOMESTICA LINN.

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THE European plums have been in cultivation so long that we have lost sight of their wild progenitors. This of itself is likely to introduce confusion into botanical notions of their specific relationships. But this long period of cultivation presents a more prolific source of misunderstanding in the wide diversity of cultural and climatic forms which have naturally arisen. These forms were numerous and diverse when the binomial nomenclature and the *Species Plantarum* began to crystallize our notions of species and botanical varieties. Gerarde says in *The Herball* in 1597 that he had in his garden "more than three score sorts, all fine and rare." In America, especially, we have fallen into a very convenient way of lumping off all the cultivated European plums into *Prunus domestica*, with some slight reservation for *Prunus cerasifera* Ehrh.; but if we go back to the beginning we find that the matter was not always so simple.

Linnaeus thought it proper, when he described *Prunus domestica*,¹ to divide it into fourteen botanical varieties. It is altogether probable that differences have increased rather than diminished since then; but, in this country at least, we recognize no botanical varieties at all for this species. What has become of them? It would be interesting to know.

In 1789 Ehrhart² separated a single one of these varieties to make his species *Prunus cerasifera*,³ a species which is generally understood and accepted in this country. Seringe in presenting this group in the second volume of the *Prodromus* (1825) did not accept Ehrhart's species, but retained the varietal

¹ Sp. Pl. 475. 1753. [1st ed.]

² Beiträge zur Naturkunde 4:17. 1689.

³ *Prunus cerasifera* Ehrh. = *P. Myrobalana* (Linn.) Lois.
1898]

name of Linnæus. At the same time he reduced the fourteen varieties given by Linnæus to eight of his own. So the consolidation has gone on, till now we have nothing left either in our botany or in our horticulture, except the names *Prunus domestica* and *P. cerasifera*, to preserve to us the early view of one of our most important fruits.

It has seemed to me that so important a change is worthy of examination. And besides it will be of some present horticultural interest to know how many distinct types we have included in *Prunus domestica*, and to understand the vicissitudes of their several phylogenies. Just at present the work of hybridizing plums is assuming considerable proportions. Sundry varieties of *Prunus domestica* are being brought into these combinations, and the existence of old and more or less distinct types within the species comes to have a new significance.

As soon, however, as we endeavor to acquaint ourselves with the Linnæan view of these cultivated plums, we meet with serious difficulties. Linnæus had no types at all, in the technical sense. That is, he made his descriptions from literature and not from specimens. He did not even write fresh descriptions from his own garden. Instead of this he took the descriptions bodily from Bauhin's *Pinax*, adding nothing but his own varietal names. The same descriptions, with slight modifications, had meanwhile been used also in Tournefort's *Institutiones*.

The *Prodromus* leaves us in a somewhat better position. For though Seringe took no pains to make clear the connection between his varieties and those of Linnæus, he did, however, refer to certain definite types. The principal ones of these are the figures and descriptions in the two editions of Duhamel's *Traité des Arbres Fruitières*. These figures and descriptions are fairly accurate and full, and, moreover, the varieties there recorded are nearly all described and figured in many other places, particularly in Poiteau's *Pomologie Française*, and many of them are retained with us to the present day with no more variation than such fruits are subject to under the ordinary methods of bud propagation. With the help of Duhamel we are thus able

GENERAL EXHIBIT OF THE PRE-DECANDOLLEAN SYNONYMY OF THE
VARIETIES OF *PRUNUS DOMESTICA* LINN.

Bauhin	Tournefort	Linnæus	Seringe
P. rotunda, flava dulcia, Mali amplitudine. P. amygdalina.	P. fructu maximo, ro- tundo, flavo & dulci. P. fructu Amygdalino.	var. maliformis var. amygdalina ?	var. Armenio- ides.
P. parva ex viridi flaves- centia.	P. fructu parvo, ex vi- ridi flavescente.	var. cereola.	var. Claudiana.
P. fructu rotundo, nigro- purpureo, dulci. P. magna rubra rotunda.	P. fructu rotundo, ni- gropurpureo, majori dulci. P. fructu majori, ro- tundo rubro.	var. myrobalan. var. acinaria.	var. Myrobalana.
P. magna dulcia atro- caerulea. F. parva, dulcia atro- caerulea.	P. fructu magno, dulci, atrocaeruleo. P. fructu parvo, dulci, atrocaeruleo.	var. Damascena.	var. Damascena.
P. magna crassida sub- acida.	P. fructu magno, crasso, subacido.	var. hungarica.	
P. Augusto maturescen- tia minora et auste- riora. P. parva præcocia.	P. fructu minori, aus- tero. P. fructu parvo, præ- coci.	var. augustana ? var. præcox ?	
P. nigra carne dura.	P. fructu nigro, carne dura.	var. perniconia. (var. pertigona.)	var. Turonensis.
P. oblonga caerulea.	P. fructu oblongo cae- ruleo.	var. juliana.	var. Juliana.
P. coloris ceræ ex can- dido in luteum pal- lescente. P. ex flavo rufescentia mixti saporis gratis- sima.	P. fructu cerei coloris. P. Brignoniensis, fructu suavissimo.	var. cerea. var. Brignola ?	var. Catherinea.
			var. Aubertiana.
Pruneoli albi oblongius- culi acidi.	P. fructu albo, oblong- iusculo, acido.	var. galatensis ?	var. Pruneau- liana.

to read backward through Seringe, Linnæus, Tournefort and Bauhin, and to see more clearly what those early botanists were describing. Of course such a method is always open to mistakes, and it will not do to be too sure that we have Bauhin's exact view of the various groups. The following table will show, as accurately as I am at present able to trace, the relation of the varieties of Bauhin, Tournefort, Linnæus, and Seringe to one another.

It is seen at once that Seringe had very little regard for Linnæus' names in preparing the monograph for the *Prodromus*. Only three of the Linnean variety names are retained. The other groups given in *Species Plantarum* are totally disregarded. This is very unfortunate; for in coming to any understanding of the early botanical types of *Prunus domestica*, Seringe's classification offers much the best basis for study. I have thought it best to accept tentatively the eight varieties as given by Seringe, since they doubtless represent the most distinct, as well as the only well-recorded types, and to study these groups separately. A due respect to the rules of botanical nomenclature, however, makes it necessary to revise some of Seringe's names. It will therefore be better if we give here with this revision a more complete record of the pre-DeCandolleian synonymy.

PRE-DECANDOLLEAN SYNONYMY OF THE VARIETIES OF PRUNUS DOMESTICA LINN.

1. Var. MALIFORMIS Linn. (var. *Armenioides* Ser.)

P. fructu maximo, rotundo, flavo & dulci Tourn.

P. rotunda flava dulcia Mali amplitudina Bauh.

P. à Malis cognominata Caes.

Var. amygdalina Linn?

P. fructu Amygdalino Tourn.

P. amygdalina Bauh.

P. amygdalina Pliny.

2. Var. CEREOLA Linn. (var. *Claudiana* Ser.)

P. fructu parvo, ex viridi flavescente Tourn.

P. parva ex viridi flavescentia Bauh.

P. parva serotina, cereola Gesn.

P. viridacia Gesn.

P. verdacea Cam.

3. Var. MYROBALAN Linn. (var. *Myrobalana* Ser.)
P. fructu rotundo, nigro-purpureo, majori dulci Tourn.
P. fructu rotundo nigro-purpureo dulci Bauh.
P. cognominata Myrobalanus Clus. (?) Cam. Tab. Ger.
P. myrobalanus rotundus Eyst.
Var. acinaria Linn.
P. fructu majori rotundo, rubro Tourn.
P. magna robra rotunda Bauh.
P. asinina Trag. Dod. Lugd. Caes.
4. Var. DAMASCENA Linn. (var. *Damascena* Ser.)
P. fructu magno, dulci, atro-caeruleo Tourn.
P. magna dulcia atro-caerulea Bauh.
P. Damascena Trag. Matth. Dod. et al.
P. Brunensia Clus.
P. Ungarica duplicia etc. Matth. Gesn. Lugd.
P. fructu parvo, dulci, atro-caeruleo Tourn.
P. parva dulcia atro-caerulea Bauh.
Var. hungarica Linn.
P. fructu magno, crasso, subacido Tourn.
P. magna crassida subacida Bauh.
P. Ungarica praestantissima Gesn.
Var. augustana Linn.? (var. *angustana* Linn. Sp. Pl. 2d. ed.)
P. fructu minori, austero Tourn.
P. Augusto maturescentia minora & austeora Bauh.
P. Augustana & Albanula Caes.
Var. praecox Linn.?
P. fructu parvo, praecoci Tourn.
P. parva praecocia Bauh.
P. praecociora, a tempore avenacea dicta Gesn.
P. averaria Taber.
5. Var. PERNICONA Linn. (var. *Turonensis* Ser.)
(Var. *pertigona* Linn. Sp. Pl. 2d ed.)
P. fructu nigro, carne dura Tourn.
P. nigra carne dura Bauh.
P. Iberica & Pertigona vocata Trag.
P. Hispanica Dod.
P. Perdigona Ludg.
P. perniconia vulgo Caes.
6. Var. JULIANA Linn. (var. *Juliana* DC.)
P. fructu oblongo, caeruleo Tourn.
P. oblonga caerulea Bauh.
P. dactyla purpurea & ovata Ludg. "qui Noberdiana et Juliana addit."

7. Var. CEREAL Linn. (var. *Catherinea* Ser.)

P. fructu cerei coloris Tourn.

P. coloris cereae ex candido in luteum palliscente Bauh.

P. cerea & Ceriola Trag. Dod. Lugd. Taber.

P. cerea Cord. Gesn.

P. amygdalina Ger.

Var. Brignola Linn.?

P. Brignoniensis, fructu suavissimo Tourn.

P. ex flavo rufescentia mixti saporis gratissima Bauh.

8. Var. AUBERTIANA, DC.

9. Var. GALATENSIS Linn? (var. *Pruneauliana* Ser.)

P. fructu albo, oblongiusculo, acido Tourn.

Pruneoli albi oblongiusculi acidi Bauh.

P. Galatensia, sive Perani pruneoli Clus.

As has been already said, one of the chief means of tracing these groups is through the cultivated varieties. Perhaps also the greatest good to be gained from an understanding of the botanical types is in the light it throws on the history and relationships of the horticultural forms. Let us examine them in order.

PRUNUS DOMESTICA MALIFORMIS.—For his types of this group (var. *Armenioides* Ser.), Seringe referred to the cultivated varieties Abricotée, Mirabelle, Drap d'Or, and Abricotée-hative of Duhamel.⁴ The citation of the first, Abricotée, is evidently an oversight, and incorrect, the same variety being given under the next head. Of these the Mirabelle seems to stand most clearly for the group in hand. This Mirabelle is not the Myrobalan known in this country and referred here to var. *Myrobalana*. Just what it is does not seem to be perfectly clear, though Koch⁵ has discussed the distinction at length and Downing⁶ describes and illustrates the variety separately. Nearly all the leading works on pomology give the Mirabelle similar treatment; and though I am at present unacquainted with any such variety,

⁴ Direct references are given to *Traité des Arbres Fruitiers* 2: 93, 95 and 96 and to op. idem, ed. nov. 5: 195. Figures are cited carefully. This is true for all varieties.

⁵ *Deutsche Obstgehölze* 151.

⁶ *Fruits and Fruit Trees of America*, 282. 1847. [7th ed.]

it is not too much to expect that we may understand the characters of the group and presently find a modern representative of it. Seringe's characterization of the group was as follows: "Fructibus rotundatis flavis vel viridi-flavescentibus, nucleo obtusiusculo."

The figures usually represent a small plum, somewhat ellipsoid, and with an evident suture.

PRUNUS DOMESTICA CEREOLA.—The Reine Claudes, or Green Gages. This is one of the most distinct and important of all the groups mentioned, and one of the oldest. It seems to have been clearly understood as a separate group by all the early botanists, and is specially recognized in many of the herbals. It is particularly mentioned by almost every writer in Europe and America from the time of Bauhin to the present. A great deal of speculation has been spent on the problem of its geographic and genetic origin, but no finally defensible conclusion has been reached. Its birthplace may have been southern Europe or eastern Asia. Koch⁷, who is one of our best authorities on these questions, advances the rather unlikely hypothesis that it originated from a crossing of the Zwetsche and the Damson, *i. e.*, *Prunus domestica galatensis* × *P. domestica damascena*. Our first definite knowledge of the variety, however, comes from Italy, where it was cultivated under the name of Verdochia. It was brought to France about 1500, the story being that it was introduced by Queen Claudia, wife of Francis I. Thus it took the name of Reine Claude. It came early to England, both from Italy and from France. The plums from Italy were grown in England under the name of Verdoch, and under that name are mentioned by Parkinson in 1629.⁸ It was probably later than this that they were brought from France, at which time the labels were lost, and the variety was renamed Green Gage, a name which has followed it to America, and which is now the one best known both here and in Britain. American nurserymen have

⁷ Deutsche Obstgeholze 150. 1876.

⁸ This and divers other points in the history of the Reine Claude group are taken from Hogg, Fruit Manual 552. London. 1875. [4th ed.]

also imported several horticultural varieties of this group from France under the names Reine Claude, Reine Claude de Bavay, etc., so that we have both names still in common use. Poiteau, a most excellent student of pomology, remarks⁹ that the Reine Claude is reproduced more or less true from seed, and the same statement is made elsewhere. The fact is still evident in the large number of seedling varieties in this country closely resembling the Reine Claude. All this justifies very well the work of Linnæus and Seringe, while holding to their notions of species and varieties, in making a separate variety of this group. We have dozens of modern representatives of this type. One catalogue which I consulted gave approximately 50 separate varieties, and 149 synonyms.

PRUNUS DOMESTICA MYROBALANA.—This is identical with Ehrhart's *Prunus cerasifera*, which is given as a distinct species in the revised *Field, Forest and Garden Botany*, and which will probably be generally accepted in this country. Linnæus' var. *acinaria* seems to belong here also, but this point cannot be determined with certainty.

PRUNUS DOMESTICA DAMASCENA.—The Damsons. This group is so distinct that it has often been given specific rank. If there were anything to be gained by it there is no reason why it should not be revived as a separate botanical variety at the present time. The Damsons as a class, come fairly true to seed, preserving their group characters quite well enough for ordinary purposes of classification. Var. *hungarica* of Linnæus is doubtless to be included in Seringe's var. *Damascena*. Var. *augustana* Linn., ought perhaps to fall into the same group, though it is very difficult to see just what Bauhin had in view in *Prunus Augusto maturescentia minora et austeora*. The name in the second edition of *Species Plantarum* was changed to *angustana*, but the derivation from Bauhin makes it clear that the earlier spelling is the one to be retained. Linnæus' variety *præcox* has been referred to this group still more doubtfully. It falls here by exclusion from the other groups, rather than by any positive characters of

⁹ Pomologie Française (no page). 1846.

identity. The group of Damsons is numerously represented in American orchards of the present day.

PRUNUS DOMESTICA PERNICONA.—These plums have long been known in cultivation under the name of Perdrigons. Two hundred years ago they seem to have been as distinct and important as the Reine Claudes. The first edition of *Species Plantarum* gave this name *pernicona*. In the second edition it was changed to *pertigona*. As both names appear in the pre-Linnean synonymy of the group it is apparent that this change was entirely arbitrary. The earliest spelling is therefore to be retained.

None of the Perdrigons specifically so-called are in general cultivation in this country now, though Downing¹⁰ describes White Perdrigon, Blue Perdrigon, Red Perdrigon, and some other varieties properly referred to the same group. It is possible that further study of existing horticultural varieties will point out some good types of this group; but for the most part the Perdrigons, as a definite type, seem to be lost from American gardens, though several of the old time varieties are still cultivated in Europe. Even those varieties like Goliath, Diamond, etc., which may perhaps belong here, are not favorites in this country. They appear to be generally large, round, coarse-fleshed fruits of poor quality.

PRUNUS DOMESTICA JULIANA.—The St. Julian plums, at the time when the *Prodromus* was written, were plainly understood to belong to a separate type. They seem largely to have disappeared, however, from modern horticulture. Downing does not give the name, even as a synonym. Neither does Thomas. Hogg¹¹ describes one St. Julian, and says that "it is scarcely ever cultivated for the fruit," but makes a good stock. The St. Julian is still used as a stock in some parts of Europe. It has been employed to some extent in this country, but proved insufficiently thrifty to suit American commercial nursery methods. Professor Bailey tells me that the St. Julian, as he has seen it recently in European nurseries, is to be referred evidently to *Prunus*

¹⁰ Fr. & Fr. Trees Am. 287, 290, 312. 1847. [7th ed.]

¹¹ Fruit Manual 570. 1875. [4th ed., London.]

cerasifera; and the fact that it grows from cuttings and its use as a stock may be held to strengthen this view. However, it is perfectly plain that in the view of early botanists the St. Julians were more closely allied to the Damsons, from which they were distinguished by their more ellipsoid fruit.

PRUNUS DOMESTICA CEREAL.—The St. Catherine plums form a considerable pomological group, and are fairly well represented at the present day. St. Catherine, still cultivated in some parts of America, is probably the same variety figured and described by Duhamel in 1768, and taken by Seringe as the type of his botanical variety *Catherinea*. Linnæus' var. *Brignola* perhaps also belongs in this group.

PRUNUS DOMESTICA AUBERTIANA.—It seems impossible to refer any one of Linnæus' varieties to this group of Seringe. Nor do any of the descriptions of Tournefort, Bauhin, or other early writers seem to suit. This is so very odd as to raise a fair doubt of our understanding, at this point, of the Linnæan classification. The plum, Dame Aubert, figured and described by Duhamel and (doubtfully) taken by Seringe for his type, was certainly old enough to have been known by Linnæus, and was altogether too conspicuous a thing to have been overlooked. The type is preserved to us in Magnum Bonum.

PRUNUS DOMESTICA GALATENSIS.—This group was evidently intended to include the prunes, a class of plums which has often been felt, especially in Europe, to stand by itself. The fruits are usually pyriform, with free stones, and are suitable for drying. Considerable confusion exists as regards the reference of many cultivated varieties to this group, but the type is fairly clear, permanent, and well understood. The common prunes of the Pacific states and the ordinary Italian Prune of eastern orchards may be taken as the modern representatives of the group.

I ought now to hasten to say that, in recalling the early views of these varietal types, I do not wish for a moment to recommend that they be revived for future use. Perhaps it would be worth while to resurrect the variety *Damascena*, but certainly botany has no use for the other variety names now, and horti-

culture is, I think, able to make a better classification out of fresh whole cloth. I have no doubt that a re-study and re-classification of the horticultural varieties of *Prunus domestica* would be a very proper and profitable thing at this time. If any one is inclined to attempt that work, this review of the early history of varietal types ought to be of some use.

In conclusion I wish to acknowledge my indebtedness to Professors W. W. Rowlee and L. H. Bailey for help in looking up these questions. The library of Cornell University has been of especial service.

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